

CLAIMS:

1. A polyamide powder, comprising polyamide particles having
a median grain size d_{50} of from 20 to 90 μm ,
5 a content of fines $< 5 \mu\text{m}$ of below 1% by weight, and
at least 75% by weight of spherical particles in which all three spatial axes x, y and z
of the individual particles have the same dimension to within $\pm 10\%$.

2. The polyamide powder as claimed in claim 1, wherein
10 at least 80% by weight of spherical particles in which all three spatial axes x, y and z
of the individual particles have the same dimension to within $\pm 10\%$.

3. The polyamide powder as claimed in claim 1, wherein the polyamide is selected
from the group consisting of nylon-11 and nylon-12.

15 4. The polyamide powder as claimed in claim 1, which
has an η_{rel} of from 1.30 to 1.65.

5. The polyamide powder as claimed in claim 1, which
20 has an η_{rel} of from 1.40 to 1.63.

6. The polyamide powder as claimed in claim 1, wherein the polyamide further
comprises one or more regulators having amino end groups and carboxy end groups, and
wherein a ratio of the amino end groups to the carboxy end groups is $\geq 3:1$ or $\leq 1:3$.

25 7. The polyamide powder as claimed in claim 6, wherein the regulators are selected
from the group consisting of dicarboxylic acid, diamine, and combinations thereof.

8. The polyamide powder as claimed in claim 1, wherein the powder further
30 comprises at least one selected from the group consisting of titanium dioxide, aluminum
oxide, and silica.

9. The polyamide powder as claimed in claim 1, wherein the powder has an upper grain size limit of 125 μm .

10. A process, comprising:
5 screening a polyamide powder to remove particles having a size of $> 125 \mu\text{m}$ to obtain a screened powder;
mechanically post-treating the screened powder to round off corners and edges, to obtain a post-treated powder; and
removing a portion of fines having a size of $< 5 \mu\text{m}$ from the post-treated powder, to
10 obtain the polyamide powder product as claimed in claim 1.

11. The process as claimed in claim 10, wherein said post-treating comprises rounding off the corners and edges in a mill, an impact device, or both.

12. The process as claimed in claim 10, wherein the portion of fines are removed in a
15 pneumatic classifier.

13. The process as claimed in claim 10, further comprising, in a fluidized-bed coating process, fluidizing said polyamide powder product, and contacting the fluidized powder with
20 a metal surface.

14. A coated surface, prepared by a process comprising, in a fluidized-bed coating process, fluidizing said polyamide powder product, contacting the fluidized powder with a metal surface, and forming a polyamide coating on said metal surface.
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15. The coated surface as claimed in claim 14, wherein said coating comprises a polyamide layer having a thickness of 50 to 200 μm .

16. A process for coating a surface, comprising, in a fluidized-bed coating process,
30 fluidizing the polyamide powder as claimed in claim 1, contacting the fluidized powder with a metal surface, and forming a polyamide coating on said metal surface.

17. The process as claimed in claim 16, wherein said coating has a thickness of 50 to 200 μm .